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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,794	05/04/2001	Adrian Boariu	NC17530	7888

30973 7590 07/09/2004

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EXAMINER

ZHENG, EVA Y

ART UNIT PAPER NUMBER

2634

5

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/848,794

Applicant(s)

BOARIU, ADRIAN

Examiner

Eva Yi Zheng

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-19 is/are rejected.
- 7) ☒ Claim(s) 10 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 20 is objected to because of the following informalities: on line 5, the phrase: "the operation of performing" should be changed to -- an operation of performing--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 11, 12, 14, and 16, recites the limitation "said operation of directly combining". There is insufficient antecedent basis for this limitation in the claim.
4. Claims 13, 17, and 18 recites the limitation "said operating of detecting". There is insufficient antecedent basis for this limitation in the claim.
5. Claim 15 recites the limitation "said operation of receiving" in line 7. There is insufficient antecedent basis for this limitation in the claim.
6. Claim 19 recites the limitation "said operation of decoding" in line 2. There is insufficient antecedent basis for this limitation in the claim.
7. Claim 14 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 14, line 8-10, phrase: "said operation" and "the further operation" is confusing and unclear.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-9, and 11-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Whinnett et al. (US 6,317,411 B1).

a) Regarding claim 1, Whinnett et al. disclose in a communication system in which space-time encoded data is transmitted at a first location and at least at a second location for communication to a receive station, an improvement of apparatus for the receive station for decoding the space-time encoded data received thereat, said apparatus comprising:

a decoder (66 in Fig. 3) coupled to receive indications of the space time encoded data received at the receive station, said decoder for directly combining (38 in Fig. 3) values of the space-time encoded data transmitted from different ones of the first and at least second to locations to the receive station and for detecting values of symbols of the data, once combined (Fig, 4).

b) Regarding claim 2, Whinnett et al. disclose the apparatus of claim 1 wherein the space-time encoded data transmitted at the first and at least second locations comprises a space-time encoded block of data (Fig. 3), and wherein said decoder directly combines values of the space-time encoded block (Fig. 4).

c) Regarding claim 3, Whinnett et al. disclose the apparatus of claim 2 wherein said decoder further forms a sequence estimate (50 in Fig. 4), the sequence estimate formed of detected values of the data, once combined (Col 3, L49-55).

d) Regarding claim 4, Whinnett et al. disclose the apparatus of claim 1 wherein the communication system comprises a radio communication system, (as shown in Fig. 3) wherein the first location at which the space-time encoded data is transmitted comprises a first antenna transducer (34 in Fig. 3), wherein the second location at which the space-time encoded data is transmitted comprises a second antenna transducer (36 in Fig. 3), the second antenna transducer spaced apart from the first antenna transducer, wherein the receive station comprises a radio receiver (38 in Fig. 3), and wherein said decoder is coupled to receive indications of the space-time encoded data received at the radio receiver (66 in Fig. 3).

e) Regarding claims 5 and 15, Whinnett et al. disclose the apparatus of claim 4 wherein the space-time encoded data transmitted at the first antenna transducer (34 in Fig. 3) is transmitted upon a first communication path (r1 in Fig.

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3) to the receive station, wherein the space-time encoded data transmitted at the second antenna transducer (36 in Fig. 3) is transmitted upon a second communication path (r2 in Fig. 3) to the receive station, wherein the receive station comprises at least one receive-antenna transducer (38 in Fig. 3) coupled to transduce indications of the space-time encoded data transmitted upon the first and second communication paths, respectively, into electrical form, and wherein the indications of the space-time encoded data to which said decoder (66 in Fig. 3) is coupled to receive are in electrical form (Col 3, L46-67), subsequent to reception at the receive-antenna transducer.

f) Regarding claims 6 and 16, Whinnett et al. disclose the apparatus of claim 1 wherein the directly-combined values of the space-time encoded data formed by said decoder comprise a real-valued component portion and an imaginary-valued component portion (70 and 72 in Fig. 4; Col 3, L56-67).

g) Regarding claims 7 and 17, Whinnett et al. disclose the apparatus of claim 6 wherein detected values of the symbols of the data, once combined, formed by said decoder comprise a detected value of the real-valued component portion and a detected value of the imaginary-valued component portion (70 and 72 in Fig. 4; Col 3, L56-67).

h) Regarding claims 8 and 18, Whinnett et al. disclose the apparatus of claim 7 wherein the receive station further comprises a detected-data value operation for operating upon detected data (44 in Fig. 3), the detected data upon which

said detected-data value operates comprised of the detected values of the symbols formed by said decoder.

i) Regarding claims 9 and 19, Whinnett et al. disclose the apparatus of claim 8 wherein the detected values of the symbols formed by said decoder comprise at least a first block of space-time decoded data symbol values (as shown in Fig.3).

j) Regarding claim 11, Whinnett et al. disclose in a method for communicating in a communication system in which space-time encoded data is transmitted at a first location and at least a second location for communication to a receive station, an improvement of a method for decoding the space-time encoded data, once received at the receive station, said method comprising:

directly combining values of the space-time encoded data transmitted from different ones of the first and at least second locations to the receive station (38 in Fig. 3); and

detecting values of symbols of the data (66 in Fig. 3), once combined during said operation of directly combining.

k) Regarding claim 12, Whinnett et al. disclose the method of claim 11 wherein the space-time encoded data transmitted at the first and at least second locations comprises a space-time encoded block of data (r1 and r2 in Fig. 3) and wherein said operation of directly combining comprises directly combining values of the space-time encoded block (38 in Fig. 3).

- l) Regarding claim 13, Whinnett et al. disclose the method of claim 12 further comprising the operation of forming a sequence estimate (50 in Fig. 4), the sequence estimate formed of detected values of the data detected during said operation of detecting.
- m) Regarding claim 14, Whinnett et al. disclose the method of claim 11 wherein the communication system comprises a radio communication system, wherein the first location at which the space-time encoded data is transmitted comprises a first antenna transducer (34 in Fig. 3), wherein the second location at which the space-time encoded data is transmitted comprises a second antenna transducer (36 in Fig. 3), the second antenna transducer spaced apart from the first antenna transducer, wherein the receive station comprises a radio receiver (38 in Fig. 3), said operation comprising the further operation, prior to said operation of directly combining, of receiving indications of the space-time encoded data at the radio receiver.

Allowable Subject Matter

10. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Yi Zheng whose telephone number is 703-305-8699. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-879-9306.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

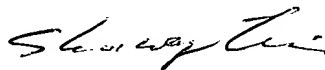
(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Eva Yi Zheng
Examiner
Art Unit 2634

June 24, 2004


SHUWANG LIU
PRIMARY EXAMINER